"4-STEP SOURCE SELECTION"

LEVEL II

FINAL REPORT

A STUDY TO TEST AND EVALUATE NEW SOURCE SELECTION PROCEDURES

1 April 1978

DIRECTOR
CONTRACTS AND SYSTEMS ACQUISITION

OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE
RESEARCH AND ENGINEERING (ACQUISITION POLICY)
Washington DC

FOREWORD

In October 1975, the Department of Defense initiated a test to evaluate proposed new procedures for conducting source selections within DoD. These procedures have been referred to as the "Four Step Process". It represented another attempt by DoD to improve its overall acquisition process, and to address some of the concerns expressed by the Industrial Community relative to source selection.

The test was conducted under the guidance of a Steering Group composed of senior level OSD and Military Department personnel. Evaluation of the test data was performed by an Evaluation Group with membership from OSD and the Military Departments.

The test is complete and this report represents the findings, conclusions, and recommendations of the Study Groups. As Chairman of the Steering Group, I wish to express my appreciation to those individuals in Government and Industry for their cooperation and support in assuring the successful completion of this major task.

Dale R. Babione
Chairman, Steering Group
Four Step Source Selection Test

"FOUR STEP SOURCE SELECTION"

A STUDY TO TEST AND EVALUATE
NEW SOURCE SELECTION PROCEDURES

(10) Dale H. Babione

FINAL REPORT

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DIRECTOR
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OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE RESEARCH AND ENGINEERING
(ACQUISITION POLICY)

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FOUR STEP SOURCE SELECTION REPORT

EXECUTIVE SUMMARY

The purpose of this summary is to provide a brief review of the five-chapter report resulting from the two-year study by the Office of the Secretary of Defense on Source Selection Procedures. The OSD Study Group's report presents information in a number of areas including source selection procedures, establishment and organization of the test program, evaluation criteria, data collection, and conclusions. This summary covers the major aspects of the Study.

BACKGROUND

The Study began in October 1975 with a memorandum from the Assistant Secretary of Defense (I&L) to the Military Departments requesting identification of candidate programs to test the proposed new Four Step Source Selection Procedures. This memorandum also set forth specific test data requirements.

TEST OBJECTIVE

The objective of this two-year test was to evaluate the effectiveness and viability of the Four Step Procedures as a method of conducting source selections within the DoD. The criteria developed as measurements centered on four major assessment areas: improving the source selection process, technical leveling, buy-ins, and auctioning. Data

appropriate to these subjects was received and evaluated to form the basis of the Study Findings and Conclusions.

TEST SCOPE

A total of seventeen (17) DoD programs used the Four Step procedures in their source selections. Program dollar values ranged from one hundred fifty thousand to over one billion, and represented various stages of program development. Test programs included space vehicles, ordnance, communication/electronics, mechanical, and aircraft.

Data to conduct the evaluation was both formal and informal, and was gathered through written reports and personal interviews with program office and participating contractor personnel.

The Four Step process, briefly described, is the: (1) submission and evaluation of the offeror's technical proposal, (2) submission and evaluation of the offeror's cost proposal, (3) establishment of the competitive range and selection of the apparent successful offeror, and (4) negotiation of a definitive contract. The Conventional process differs in that (1) offeror's technical and cost proposals are submitted and evaluated simultaneously, (2) definitive contracts are negotiated with all offerors in the competitive range, and (3) contractor selection then consummated. One additional difference in the two processes involves discussion of proposal deficiencies. In the Four Step process, these deficiencies are not revealed to the individual offerors while in the Conventional process protracted discussions may evolve around proposal deficiencies.

FINDINGS AND CONCLUSIONS

Based on evaluation of the test data and the findings detailed in Chapter III of this report, conclusions developed by the Study Group are summarized below in relationship to the four evaluation assessment areas.

IMPROVE SOURCE SELECTION PROCESS

* TIME - The test data does not demonstrate that the Four Step process takes more or less time than the conventional process.

  - Test participants were of the opinion that the Four Step process was more time consuming.
  - Further experience with the Four Step process may reduce the overall time.
  - The solicitation should include a schedule of source selection events.

* SOLICITATION QUALITY

  - The test did not demonstrate that the Four Step process affected solicitation quality.
  - The number of solicitation amendments and Industry inquiries was not indicative of solicitation quality.

* PROPOSAL QUALITY

  - Industry comments revealed that the Four Step process encouraged a proposal strategy of "first and best".
  - Cost proposals are made more realistic when the technical and cost proposals are submitted sequentially.
  - The number of proposal changes and Government clarification requests were not indicative of proposal quality.

* PERSONNEL UTILIZATION

  - Government expenditure of resources is increased by the Four Step process.
  - Unsuccessful offeror's expenditure of resources remained unchanged or was reduced.
  - Successful offeror's expenditure of resources increased.

* SINGLE SOURCE NEGOTIATIONS

  - Negotiations with only the selected offeror is a viable and in selected instances is the preferred approach.
  - The lack of detailed negotiations with all offerors in the competitive range may deny the source selection official useful information upon which to make a sound decision, and eliminate the advantages to be gained through continued competition.
  - There is a need for clearer regulatory language regarding the substance of negotiations with the selected offeror.

* PROTEST ACTIVITY

  - The opportunity for protests prior to award is increased by the Four Step process.

* TECHNICAL LEVELING

* DISCUSSION OF DEFICIENCIES

  - The regulatory language concerning the distinction between the two types of technical deficiencies (clarifications and deficiencies) is unclear.
  - The regulatory language concerning the discussion of cost proposals is unclear.
  - Technical leveling was reduced or eliminated by not disclosing deficiencies.
  - Communication between the Government and Industry was severely restricted.

- O Visibility of discriminating features among proposals was maintained by the absence of disclosure and correction of deficiencies.

- O Undisclosed and uncorrected deficiencies increased the uncertainty of the source selection decision.

- O The Government's estimate of expected performance and cost and of an offeror's ability to correct deficiencies is of paramount importance to the source selection decision under the Four Step process.

* MULTIPLE/REPETITIVE SCORING

  - O There was no disclosure of deficiencies which influenced the ultimate source selection decision.

* SOLICITATION AMENDMENTS

  - O Technical leveling did not occur through the issuance of solicitation amendments after receipt of proposals.

* BUY-INS

  * COST ESTIMATES AND COST PROPOSAL INCREASES/DECREASES

    - O The Four Step process may have a moderate impact in reducing buy-ins.

    - O Buy-ins are percipitated by factors external to the source selecting process which must be addressed by other means.

* AUCTIONING

  * BEST AND FINAL OFFERS

    - O The Four Step process appears to have eliminated repetitive calls for "Best and Final Offers" in the absence of compelling reasons.

    - O The opportunity for auctioning through multiple "Best and Final Offers" is substantially reduced or eliminated.

* HEAD OF PROCURING ACTIVITY WAIVER

  - There is a need for the regulatory language to include criteria for use by the HPA in making a determination as to when multiple negotiations are warranted.

* GENERAL - The Four Step cannot and does not affect such factors as:

  * Overly optimistic technical goals/requests and injudicious industry response to them.

  * Unrealistic Government program cost and schedule estimates and industry acquiescence.

  * Economic conditions in industry such as idle capacity.

  * Industry motives of technical pride, survival and retention of trained work forces.

RECOMMENDATIONS

Based on the findings in Chapter III and the conclusions set forth above, the following recommendations are made for adoption of the Four-Step Source Selection Procedures.

* These procedures shall be adopted for all competitively negotiated acquisitions involving research and/or development which have progressed beyond the formulation of concepts except those which:

  * Involve the selection of a contractor from among competing demonstration and validation contractors

  * Have an estimated value of less than $2 million *

  * Are negotiated pursuant to 10 USC 2304 (a)(2)

  * Are solely for personal or non-personal services

  * Are for Architect-Engineer efforts

    * Dollar threshold will be reviewed at a later date to determine if a change is required.

* Waiver of the requirement to use these procedures in the competitive acquisition of major defense systems, as designated pursuant to DoDD 5000.1, shall be granted only by the Acquisition Executive of the Military Departments. For all other acquisitions, waivers shall be granted in accordance with Military Department regulations.

* Provisions be developed to permit use of these procedures on any acquisition where deemed appropriate.

* The Government solicitation should include a schedule of source selection events.

* The use of technical libraries, draft solicitations and/or specifications, pre-solicitation and pre-proposal conferences should be used as a means of providing early and open dialogue leading to a better understanding between Government and Industry.

* The provisions relating to negotiations with the selected offeror should be changed to (1) eliminate the requirement that the selected offeror's proposal (technical and cost) must satisfy the Government's minimum requirements; and (2) more clearly specify that technical deficiencies must be disclosed and resolved, and detailed negotiations conducted in order to assure that the Government's minimum requirements are satisfied.

* The provisions relating to the discussion of technical proposals be changed to specify that offerors shall not be advised of deficiencies in their proposals. A deficiency is defined as that part of an offeror's proposal which would not satisfy the Government's requirements.

* Provisions for discussion of cost/price proposals should be changed to explicitly state that cost discussion shall not disclose to offerors those areas of their cost proposal which the Government believes are too high or too low.

* The provision for the Head of Procuring Activity to authorize negotiations with more than one offeror should be changed to specify that such authorization shall not be used solely for the purpose of maintaining technical and/or price competition. However, such authority may be granted, as an example, in unique situations where there are not significant discriminating technical or cost features between two or more offerors.

* Existing Government curricula in acquisition should be expanded to include training in these procedures.

SUMMARY REPORT

FOUR STEP SOURCE SELECTION

TABLE OF CONTENTS

STUDY GROUPS

STEERING GROUP

CHAIRMAN - MR. DALE R. BABIONE
DIRECTOR, CONTRACTS AND SYSTEMS ACQUISITION, OSD

MR. DENNIS TROSCH
ASSISTANT GENERAL COUNSEL (LOGISTICS), OSD

MR. GEORGE W. SUTHERLAND
OFFICE OF THE UNDER SECRETARY OF DEFENSE R&E, OSD

MR. ROBERT KEMPS
DIRECTOR, ACQUISITION MANAGEMENT INFORMATION DIVISION
(COMPTROLLER), OSD

MR. HARVEY J. GORDON
DEPUTY FOR PROCUREMENT, OFFICE OF ASSISTANT SECRETARY OF
THE AIR FORCE (RESEARCH, DEVELOPMENT, AND LOGISTICS)

MRS. SALLY CLEMENTS
DEPUTY FOR MATERIAL ACQUISITION
OFFICE OF ASSISTANT SECRETARY OF THE ARMY (RD&A)

CAPTAIN J. S. SANSONE, JR
DIRECTOR OF PROCUREMENT
OFFICE OF ASSISTANT SECRETARY OF THE NAVY (MRA&L)

EVALUATION GROUP

CHAIRMAN - LT. COL. DOUGLAS C. DILLON
OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE
(ACQUISITION POLICY), OSD

MR. JAMES L. RANEW
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY(RD&A)

MR. RICHARD MOYE
OFFICE OF THE DEPUTY CHIEF OF NAVAL MATERIAL ACQUISITION

LT. COL. DANIEL D. UNRUH
HEADQUARTERS, UNITED STATES AIR FORCE

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D C 20301

INSTALLATIONS AND LOGISTICS

4 MAR 1976

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE ARMY (I&L)
ASSISTANT SECRETARY OF THE NAVY (I&L)
ASSISTANT SECRETARY OF THE AIR FORCE (I&L)

SUBJECT: Service Test of the Four Step Source Selection Process

On 28 October 1975 we issued instructions to start the service test of the four step source selection process. Those instructions included an exerpt from the draft DoDD 4105.62, "Selection of Contractual Sources", and test ASPR 3-805.3 language which contained guidance for the conduct of the source selection. These instructions were amended on 19 November. DoDD 4105.62 has now been issued with a date of 6 January 1976.

The purpose of this letter is to reaffirm and clarify those instructions previously provided pursuant to Section III.D.5 of DoDD 4105.62. These instructions are set forth in Attachment 1.

We wish to reemphasize that the test ASPR 3-805.3 language contained in Attachment 1 is applicable only to the procurements which use the four step source selection process in this service test. As a result, that portion of the ASPR 3-805.3 language (1975 edition) which varies from the test language does not apply to those procurements.

At the conclusion of the test, the results will be analyzed and a decision will be made whether to adopt the four step process. At that time, the ASPR Committee will determine the final wording of ASPR 3-805.3 which will be applicable to the four step source selection process.

The Directorate of Weapon System Procurement will be in charge of the working group that assesses the results and assembles the data on the test. This working group will present its findings to a steering group (which the Deputy Assistant Secretary of Defense (Procurement) will chair). This steering group will recommend to the DepSecDef, after coordination with the appropriate ASD's and Service Secretaries, whether or not to adopt the process in whole or in part. After a DepSecDef decision is received, appropriate changes to ASPR and the DoDD 4105.62, "Selection of Contractual Sources for Major Defense Systems" will be made.

The primary action officer for evaluating the test results in the Directorate of Weapon System Procurement is Lt Col Douglas C. Dillon, x52368.

DALE R. BABIONE
Deputy Assistant Secretary
of Defense (Procurement)

Attachment
As Stated

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D C 20301

2 8 OCT 1975

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE ARMY (I&L)
ASSISTANT SECRETARY OF THE NAVY (I&L)
ASSISTANT SECRETARY OF THE AIR FORCE (I&L)

SUBJECT: Test of the Four Step Source Selection Concept

The forthcoming DODD 4105.62, "Selection of Contractual Sources for Major Defense Systems", establishes a service test of a four step source selection process for research and development procurements for advanced, engineering, and operational systems. The purpose of this memorandum is to outline the plan for implementing the test and to request commencement of the test.

Attachment 1 is the service test plan. Attachment 2 contains Section III.D.5 taken from the forthcoming revised directive. It is to be used as the basic guidance (pending formal distribution of the directive) along with (1) the test ASPR 3-805.3 language (applicable to this test only) in Attachment 3, and (2) the correspondence to and from the GAO in Attachment 4.

Attachment 5 includes the programs selected by the Services for the test. If there are any changes to this list, please advise us as soon as possible. Later on, we may ask for additional programs to be added to the list.

DALE R. BABIONE
Deputy Assistant Secretary
of Defense (Procurement)

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a/s

CHAPTER ONE

INTRODUCTION AND BACKGROUND

Source selection in negotiated procurements is governed by the Armed Services Procurement Act (10 U.S.C. 2304) which requires that "written or oral discussions shall be conducted with all responsible offerors who submit proposals within a competitive range; price, and other factors considered."

The implementation of this law in the Armed Services Procurement Regulation (ASPR), paragraph 3-805, is the result of a long history of practical application of this requirement for discussions, including significant rulings of the Comptroller General as to the nature of and need for discussions in varied circumstances. The pertinent present ASPR requirement reads as follows: "All offerors.....shall be advised of deficiencies in their proposals and shall be offered a reasonable opportunity to correct or resolve the deficiencies and to submit such price or cost, technical or other revisions to their proposals that may result from the discussions. A deficiency is defined as that part of an offeror's proposal which would not satisfy the Government's requirements."

In practice, these requirements have generally resulted in detailed discussions of several offeror's proposals, essentially simultaneously, until all deficiencies are corrected, otherwise resolved, or at least

understood. The offeror's proposals are thus changed through Government initiatives. Discussions are formally ended at a time common to all offerors and the results are confirmed by submission of "best and final offers." The selection is then made from among those changed proposals which best meet the Government's requirements. This practice, conforming to law and regulation, results in meaningful discussions, equal opportunity among all offerors, and reasonable assurance that the Government will be able to satisfy its requirements.

In procurements where the principal product being sought by the Government is industry innovation, expertise and ingenuity in fulfilling a need (as opposed to those in which the answer to the need is fairly well or completely known), the process in use today tends to obscure technical and management differences between competing offers. This apparent result of the selection process has been criticized within the Department of Defense and Industry. It is charged that "technical leveling" and "technical transfusion" results. "Technical leveling" is described as the correction or resolution of deficiencies in an offeror's proposal until the proposal at least meets the minimum requirement. If this is done with all offerors, the opportunity exists for their proposals to be made acceptable regardless of initial shortcomings. "Technical transfusion" is described as providing an offeror's idea to one or more other offerors. "Technical transfusion," which may result in

technical leveling, is strictly prohibited by current regulations (ASPR 3-805.3(b)). Should technical leveling occur, the ingenuity and expertise of the offerors as reflected in their initial proposals is minimized or obscured.

Indeed, critics charge that technical leveling is bad because: (1) it may allow an otherwise less capable offeror to remain in competition, and perhaps win through the interjection of Government expertise; (2) it may permit the continued viability of a capable offeror's poorly devised proposal; (3) it encourages hasty, ill-conceived contractor changes to an approach which may not be feasible; (4) it creates an environment in which changes, however viable, may be made in one area without regard to impact on other areas, most significantly on costs; and (5) since such leveling occurs in the technical and managerial areas most frequently, the source selection decision may rest on the lowest cost.

All of these situations are viewed as contributing to auctions, buy-ins, and as leading to program overruns, slippages, and failures in performance; any or all of which may severely damage the productivity and credibility of the acquisition efforts of the Department of Defense and the defense industry.

In order to address these concerns, the DoD Contractor Relations Executive Committee, chaired by Dr. Malcolm R. Currie, (DDR&E), established an action item in 1974. In an attempt to improve the situation,

Mr. James Plummer, then Under Secretary of the Air Force, proposed a new approach for awarding negotiated contracts requiring the performance of advanced, engineering or operational systems development. This concept became known as the Four-Step Source Selection Procedure. During this same time period, the DoD was in the process of updating DoD Directive 4105.62, Selection of Contractual Sources for Major Defense Systems, which provided source selection policy and procedures for Major Defense Systems. The revised DoD Directive 4105.62 was issued in January 1976 and included a service test of the Four-Step Source Selection procedure.

The overall objectives of this revised directive are threefold:

(1) Select contractors who are realistic, credible and meet Government needs at the right price.

(2) Assure an unbiased in-depth evaluation of contractor's capabilities in relation to DoD requirements.

(3) Optimize the Government's operation of the entire selection process.

To meet these objectives the directive provides guidance in the following areas:

* The basic policy by which to meet the above objectives.

* The organizational structure by which to perform the selections which specifically provides for an effective system of checks and balances.

* Requirements for detailed source selection and procurement planning which provides for review and approval at various levels and encourages tradeoffs within the evaluation factors to meet our requirements.

* Solicitation structure, i.e., design to minimize expense and provide a better understanding between Government and Industry.

* Detailed evaluation guidelines with a view toward present and past performance as well as the most likely outcome with regard to each competitor if selected. Strong emphasis is provided on tradeoffs and identification of risk.

* Selection procedures to include negotiation, contract award, final reporting, and procedures for debriefing.

In order to test the Four-Step Source Selection procedures, it was decided to include the new concept as an adjunct to the revised source selection directive. Paragraph III, D.5 and its subparagraphs formally established the test policies and procedures that were to be used by the Service Components. The instructions in the revised directive for the Four-Step procedure were further supplemented by guidance from the Assistant Secretary of Defense (I&L) in October 1975 and March 1976. This guidance provided a service test plan, clarification of language, appropriate changes to the Armed Services Procurement Regulation (ASPR), and correspondence with the General Accounting Office providing further guidance and concurrence in the test.

To provide a foundation for understanding, an examination of the current method of source selection (conventional) and the four-step procedures follows:

Conventional Source Selection Procedures

The Conventional source selection procedures basically use a parallel or concurrent evaluation process shown in Figure 1 and described below.

CONVENTIONAL

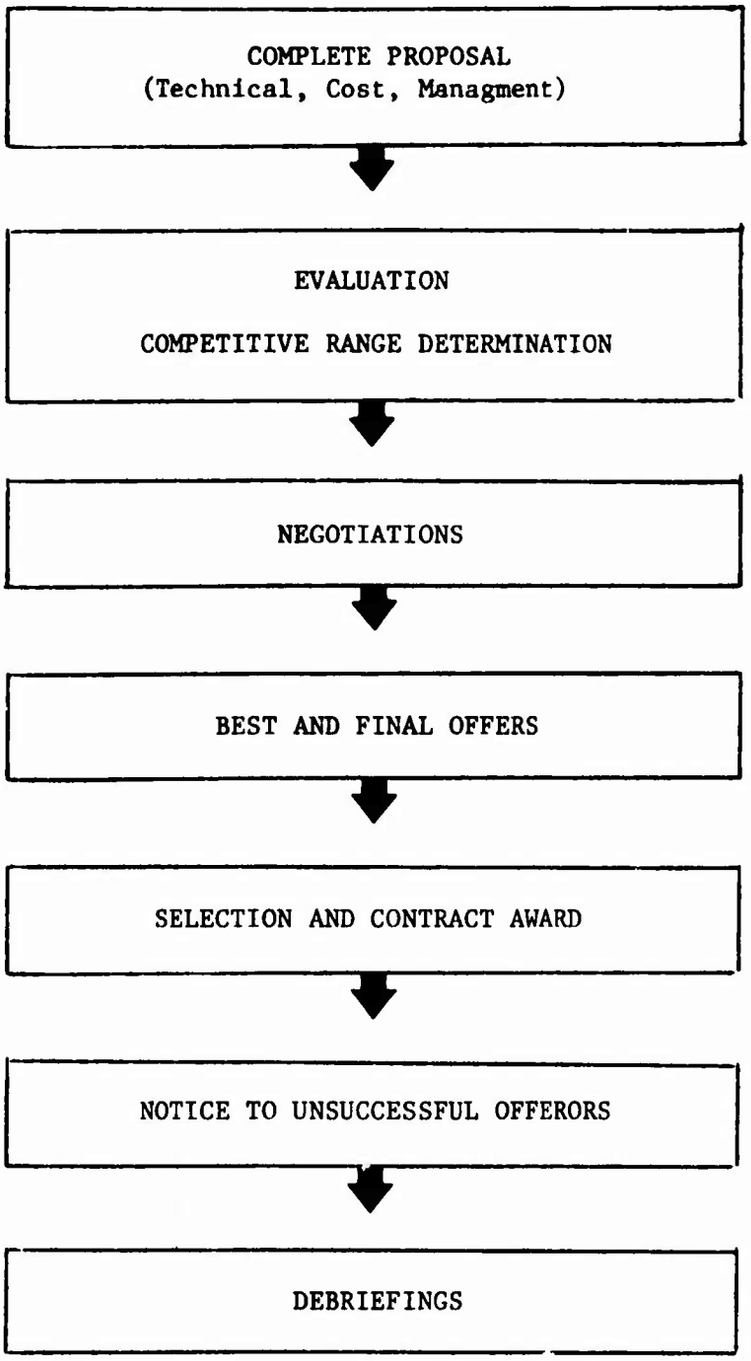

Figure 1

These procedures consist of the development by the Government of a solicitation which is sent to industry requesting the submittal of a proposal, usually in three parts: Technical, Management, and Cost/Price. Upon receipt, this complete proposal is evaluated against established evaluation criteria. A competitive range is established and those offerors who remain within that range continue into parallel negotiations, encompassing all facets of the proposals, including technical and management deficiencies as well as cost and price. The negotiations are concluded by the Government requesting a "best and final" offer from all offerors in the competitive range and their signature on a contract. These final offers then receive a final review and evaluation. Finally a recommendation is made through established channels for a source selection decision. When the decision is made, the contract is executed with the winning offeror and all unsuccessful offerors are notified of the results. If requested, debriefings are conducted with the unsuccessful offerors.

Four Step Source Selection Procedures

The test procedures found in DoD Directive 4105.62, January 6, 1976, are basically designed for awarding competitively negotiated contracts for advanced, engineering, and operational systems development. The process briefly described is accomplished in four discrete, serial, steps as shown in Figure 2 and described below.

FOUR STEP

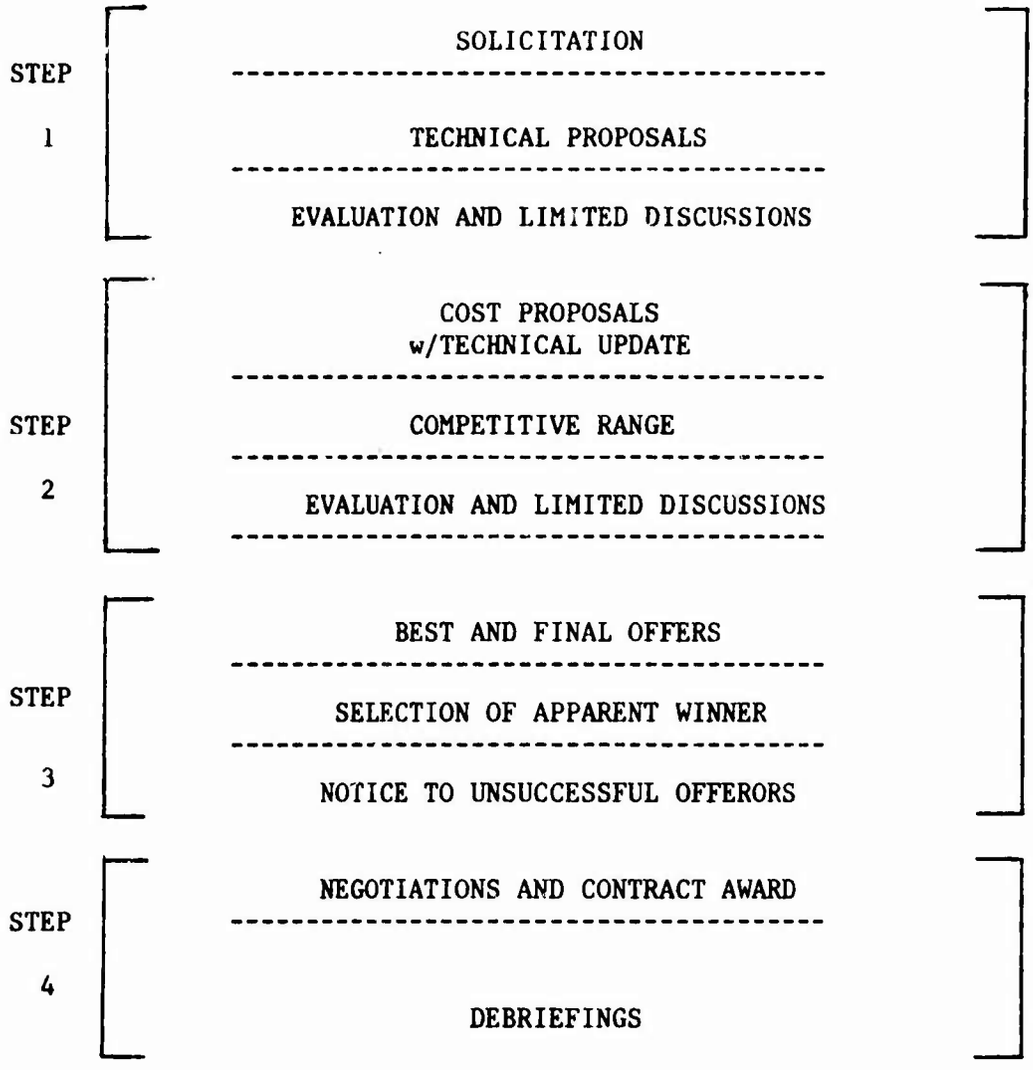

Figure 2

In step 1, separate technical proposals are first solicited and evaluated with limited discussions held with all offerors. These limited discussions are basically for the purpose of understanding and clarification and are restricted to proposal meaning, substantiation of technical approach, solution, or further clarification of the solicitation. Technical deficiencies clearly relating to an offerors judgment, or his lack of competence or inventiveness in preparing his proposals are not disclosed. Cost estimates which illustrate the impact of tradeoffs upon projected production and operating and support costs are required. Fully substantiated cost information pertaining to performance of the contemplated contract effort is required in the cost proposal described in Step 2.

In step 2, following the technical analysis, and discussions, a cost/price proposal is obtained from each offeror together with any necessary revisions to update technical proposals based upon the limited technical discussions in Step 1. Subsequent to the receipt of the cost/price proposals and any technical revisions made as a result of these limited discussions, a competitive range is then established. Those proposals outside of the competitive range at this point may be eliminated and the offerors so notified. Meaningful cost/price discussions are then held with the remaining offerors but are limited to cost realism, correlation of cost with technical, correction of mathematical errors of that required to have a complete understanding of what is being offered. The burden of proof for cost credibility rests with each offeror and supporting data must provide traceability to the causative technical, business or financial conditions that brought about a change. In order to help identify "Buy-ins", lump sum reductions in cost/price are not accepted without full and complete supporting rationale. Following such discussions, a proposal may be eliminated from further consideration and offerors so notified where the proposal was initially included in the competitive range because it might have been susceptible of being made acceptable, or because there was doubt whether it was in the competitive range and discussions relating to ambiguities and omissions made clear that the proposal should not have been included in the competitive range initially.

In step 3, a common cutoff date for the receipt of final revisions to technical and cost/price submittals is then established and the remaining offerors so notified. Repeated calls for best and final offers without substantive changes in requirements are strictly prohibited to prevent auctioning.

After receipt of any revised submittals, the proposals are evaluated based upon the offeror's total proposal and a single contractor selected for negotiation of the contract. The selected offeror's proposal must satisfy the Government's minimum requirements. In order to release proposal teams at the earliest practical date, all offerors are notified of the contractor selected.

In step 4, a definitive contract is then negotiated with the selected offeror and contract award accomplished. These negotiations must be completed in a timely manner and must not involve material changes in the Government's requirements or the contractor's proposal which affect the basis for source selection. In the event a definitive contract cannot be consummated on a timely basis, negotiations may be terminated and a new source selection decision made. Upon request, formal debriefings are provided to unsuccessful offerors after contract award.

A COMPARISON - FOUR STEP vs CONVENTIONAL

Figures 1 and 2 illustrate three major differences between the Four Step and Conventional source selection procedures.

First, the Four Step procedures require submission and evaluation of technical proposals followed by submission and evaluation of cost and price proposals. Conventionally, the process requires consideration of technical, management, and cost/price concurrently. The second difference is that discussions under the Four Step procedures are limited in the competitive phases (prior to selection of the winner) to those necessary for clarification and understanding. In the Conventional procedures, discussions are unlimited and must include the disclosure of deficiencies and the opportunity for their correction. Thirdly, in the Four Step procedure, negotiations are conducted only with the selected offeror

rather than all offerors in the competitive range as is the case under the Conventional approach.

On July 31, 1977, an Interim Report, A Study to Test and Evaluate New Source Selection Procedures, was published by the Deputy Assistant Secretary of Defense (Procurement), Office of the Assistant Secretary of Defense (MRA&L). This report provided a brief overview of the findings to date but were somewhat limited in scope and depth. The principal factor for this limited scope was a number of programs had schedule slippages and many of the contractors had been involved in more than one test program. As a result, the Evaluation Group chose not to gather data or conduct interviews on these programs so as to not intervene prior to contract awards.

In summary, the basic objectives of this test were to improve the overall DoD source selection process while reducing or eliminating technical leveling, auctioning, and buying-in. The attainment of these objectives was to be measured through a full assessment of the Four Step Source Selection techniques and the basic guidance provided in DoD Directive 4105.62 and ASPR 3-805. Following this assessment, the results were to be provided the Deputy Secretary of Defense, DEPSECDEF, for his final review and determination on the proposed adoption of changes to source selection procedures.

CHAPTER TWO

TEST ORGANIZATION AND OPERATION

TEST SCOPE

The scope of the Four Step Source Selection test evaluation encompassed four major efforts. The first was to establish an organization for evaluation of the test. The second, to acquire candidate programs. The third, to develop evaluation criteria, identify test data requirements, and collect the data from government and industry. The fourth and final effort was to conduct the evaluation, formulate conclusions/recommendations, obtain and implement a decision on changes to source selection procedures.

During October 1975, prior to issuance of the revised DoDD 4105.62, meetings were held with both Industry and Government personnel to propose and explain the purpose and procedures of the forthcoming test. During that same time period, implementing instructions were issued establishing the guidelines and organization to be used in the conduct of the test.

CANDIDATE PROGRAM SELECTION

With the decision made to proceed in testing of the new process rather than immediate implementation of the procedures, OSD required

each Military Service component to select six test and six control candidate programs. Control programs were to use the Conventional procedure for comparison with the Four Step test programs. The initial guidance to the Services required the selected candidate programs to meet this criterion: (a) major weapon systems as defined by DoD Directive 5000.1 (valued at $200 million production or $50 million Research and Development), in the development phase, (b) contract award within the time frame of the test, and (c) a variety of program types.

After examination of available programs, it was determined that the Services did not have a sufficient number of programs, test and control, that would meet the prescribed dollar thresholds for evaluation. Consequently, OSD was faced with a decision to either terminate the test or continue with less than major programs. It was decided to test a broad spectrum of programs, resulting in selection of programs ranging from one hundred fifty thousand to over one billion dollars. As will be evidenced later in this report, this broadened scope proved to be extremely beneficial in the lessons learned from the test.

As data began flowing to the Evaluation Group and preliminary evaluation completed, it was determined that the use of control programs for comparison with the test programs was not a sound concept and was, therefore, rejected. This rejection came about because there were no programs of equal scope or complexity and the various environments under which they were operating could have caused perturbation of the study

results. It is doubtful that one given program conducted under both selection methods would have revealed data sufficient to make meaningful comparison of the two selection procedures.

In an effort to provide diversification in test programs, the Military Services selected programs from various procuring activities. Listed below are those Government procuring activities that participated in the test.

ARMY

AVIATION RESEARCH AND DEVELOPMENT COMMAND
MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT COMMAND
MISSILE COMMAND
ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
ARMAMENT READINESS COMMAND
EDGEWOOD ARSENAL

NAVY

NAVAL AIR SYSTEMS COMMAND
NAVAL SEA SYSTEMS COMMAND
NAVAL ELECTRONIC SYSTEMS COMMAND
NAVAL AIR DEVELOPMENT CENTER
NAVAL TRAINING EQUIPMENT CENTER

AIR FORCE

SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC)
AERONAUTICAL SYSTEMS DIVISION (AFSC)
ELECTRONIC SYSTEMS DIVISION (AFSC)

The test programs include space vehicles, mechanical, ordinance, communications, electronics, and aircraft, and represent various stages of program development. The programs selected for testing the Four Step procedures are shown below.

ARMY

SOFT RING AIRFOIL GRENADE PROJECTILE
ENGINE, 800 HORSEPOWER (ATDE)
LIGHT WEIGHT ROCKET LAUNCHER (2.75 inch)
SQUAD AUTOMATIC WEAPON SYSTEM
INVERTER, 3 KW FUEL CELL
LIGHT WEIGHT FLIR SENSOR FOR REMOTELY PILOTED VEHICLES
DIVISION AIR DEFENSE (DIVAD) GUN SYSTEM

NAVY

LIGHT AIRBORNE MULTI-PURPOSE SYSTEM (LAMPS MK III)
SPS-XX SOLID STATE STANDARD ELECTRONIC RADAR
SUBMARINE/AIR OPTICAL COMMUNICATION SYSTEM
MARKMANSHIP AND GUNNERY LASER DEVICE
TACTICAL AIR ANTI-SUBMARINE WARFARE PODS

AIR FORCE

SPACE SHUTTLE INTERIM UPPER STAGE
SAC AUTOMATED TOTAL INFORMATION NETWORK (SATIN IV)
JOINT SURVEILLANCE SYSTEM
JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM
B-25/KC-135 SIMULATORS

EVALUATION ORGANIZATIONS

The organization for evaluation consisted of a Steering Group and an Evaluation Group. The Steering Group was chaired by the Director, Contracts and Systems Acquisition (OSD) and was composed of senior level officials from other OSD staff elements and the Military Departments.

The responsibilities of the Steering Group were to:

- Provide guidance to the Evaluation Group
- Perform review functions for the Evaluation Group
- Assess effectiveness of the Four Step procedures
- Provide test results and recommend a decision to the DEPSECDEF

The Evaluation Group was structured to provide working representation by each of the Military Departments.

The Responsibilities and duties of this Group were to:

- Develop evaluation criteria
- Collect test data
- Perform evaluation of test data
- Review test results with Government and Industry
- Provide an analysis of test results to the Steering Group

One of the primary objectives in structuring the evaluation was to assure that interested parties, both Government and Industry, had the opportunity to voice their opinions and experiences relative to the Four Step as a method of conducting source selections.

In addition to the participating Government activities and contractors, Industry was solicited for input through the Council of Defense and Space Industry Association (CODSIA) in order to provide an avenue for contractors not participating in the test to submit comments to the Evaluation Group. An Industry position paper was requested from CODSIA to provide these comments. On a periodic basis, the Steering Group and Evaluation Group met to review progress of the test and discuss projected efforts remaining to be completed.

EVALUATION CRITERIA

A major consideration in the overall evaluation plan was the development of sound criteria by which to evaluate the new procedures. In developing the criteria, an attempt was made to identify subject matter which fell into one of the four areas of assessment: (1) improving the source selection process, (2) technical leveling, (3) buy-ins, and (4) auctioning. Within these four areas of assessment, specific criteria were selected which would relate to those procedural differences between the Four Step and the current method of source selection. It was recognized by both the Steering and Evaluation Groups that the evaluation would

consist of both objective and subjective data measured against the criteria shown in Figure 3. The decision to adopt a new source selection procedure would be based upon the presentation of this data and Steering Group recommendations.

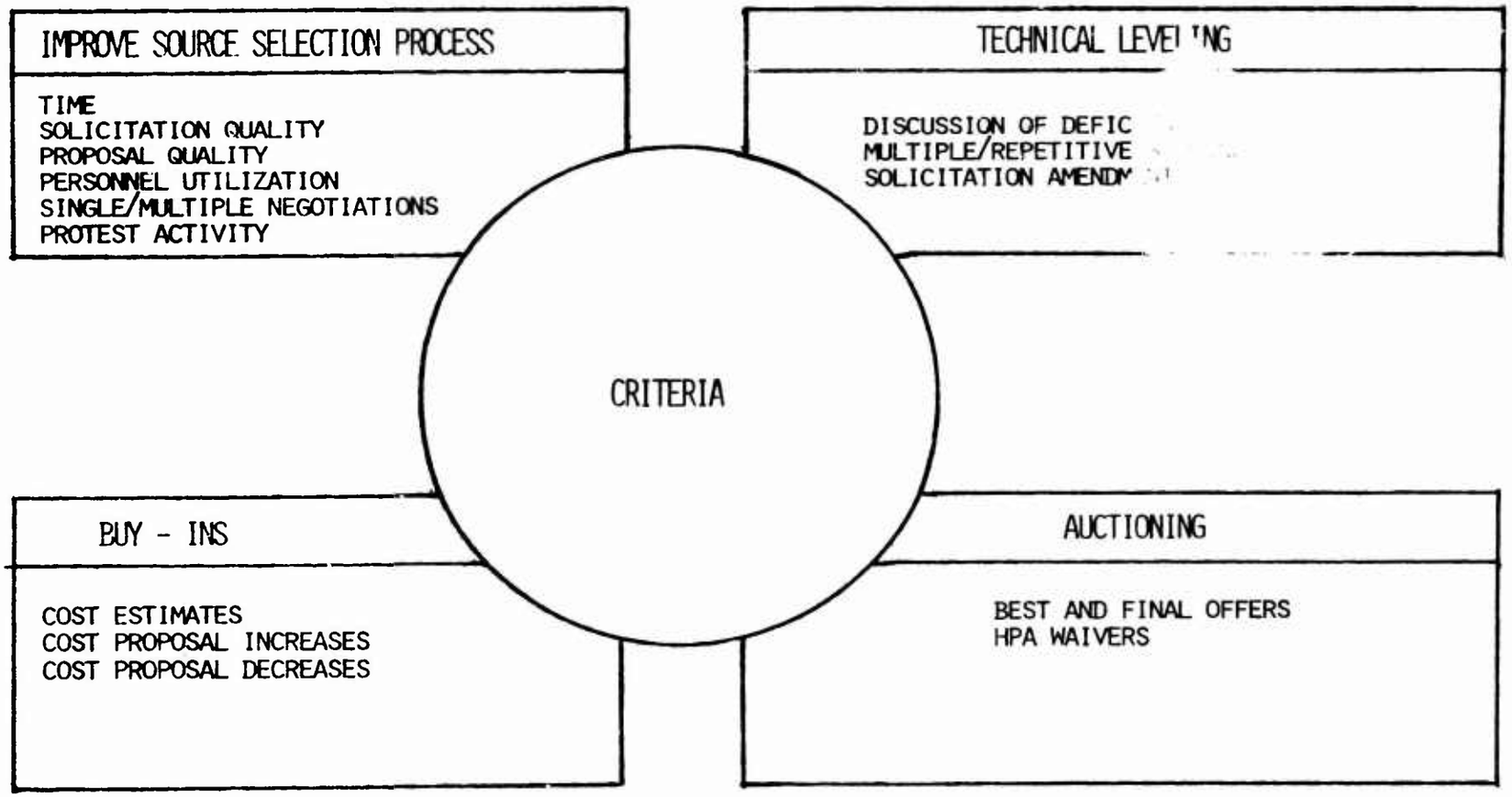
IMPROVE SOURCE SELECTION PROCESS
TIME
SOLICITATION QUALITY
PROPOSAL QUALITY
PERSONNEL UTILIZATION
SINGLE/MULTIPLE NEGOTIATIONS
PROTEST ACTIVITY
TECHNICAL LEVEL 'NG
DISCUSSION OF DEFIC
MULTIPLE/REPETITIVE
SOLICITATION AMENDM
CRITERIA
BUY - INS
COST ESTIMATES
COST PROPOSAL INCREASES
COST PROPOSAL DECREASES
AUCTIONING
BEST AND FINAL OFFERS
HPA WAIVERS

Figure 3

The following rationale was used in selecting individual criterion for evaluation.

Time - Any reduction in the total time required to conduct source selection would be an improvement in the overall source selection process.

Solicitation Quality - The concept of not discussing proposal deficiencies would require more thorough preparation and review of the solicitation and would reduce the need for multiple revisions of the solicitation after release to Industry.

Proposal Quality - The quality of contractor's proposals would be improved as a result of an improved government solicitation, not discussing proposal deficiencies, and negotiations after selection of an apparent winning offeror.

Personnel Utilization A reduction in manhours and/or more efficient utilization of Government and contractor personnel may be achieved through sequential submission and evaluation of contractor's proposals, and early elimination of unsuccessful offerors.

Single Source Negotiations - Savings in Government and Industry resources would result from negotiating with only one offeror rather than all offerors in the competitive range. Additionally, the opportunity for auctioning to occur is reduced.

Protest Activity - Early notification to unsuccessful offerors provides an increased opportunity for protest prior to contract award.

Discussion of Deficiencies - The limitation on discussion of deficiencies reduces the opportunity for the Government to technical level offeror's proposals.

Multiple/Repetitive Scoring - The multiple/repetitive scoring of offeror's proposals and a change in an offeror's relative position may indicate that proposal deficiencies were revealed.

Solicitation Amendments - An inordinate amount of technical amendments to the Government's solicitation after receipt of proposals may indicate technical leveling of offeror's proposals.

Cost Estimates - Analysis of contractor's initial cost proposals, Government's Most Probable Cost Estimates, Best and Final Offers, and the Negotiated Price, coupled with a substantial unsupported difference between the Best and Final Offer and the Negotiated Price may evidence a cost buy-in.

Cost Proposal Decreases - An unsupported or unsubstantiated reduction in an offeror's cost proposal may indicate a cost buy-in.

Best and Final Offers - Repetitive request for Best and Final Offers, without extenuating circumstances and/ or rationale, would indicate auctioning had occurred.

Head of Procuring Activity Waiver - HPA waiver to negotiate with more than one offeror, without full substantiation or rationale, could indicate circumvention of the Four Step procedures.

DATA

The Evaluation Group used a large data base from many sources. It was decided that the most logical and productive approach for collection of data would be a method which included both formal and informal data. Formal data would be obtained through written reports from government program offices while the informal data would be gathered through personal interviews conducted by the Evaluation Group with program office and contractor personnel. These interviews were conducted in an informal atmosphere stressing non-attribution and complete candor. The specific criteria were addressed as well as general comments solicited as to the benefits or deficiencies inherent in the new concept. The Evaluation Group was able to clarify and verify numerous points of evaluation data

plus solicit comments and innovations not initially considered early in the test formulation.

The initial OSD request for formal written data from the Government program offices went to the Military Department in October 1974. Specific data requirements were identified in the implementation instructions and required each procuring activity to report in detail on the various aspects of each test program under study. As the test program progressed and data requirements were received, the Evaluation Group realized that the initial data request was deficient in some areas. Consequently, in March 1976, a revised request for data was forwarded to the Military Departments which would provide data more appropriate to the evaluation criteria. This data package was used to collect proposal evaluation, contractual, and procedural information on each individual candidate test program.

In gathering informal data, the Evaluation Group's goal was to visit each Government program office, each successful contractor and as a minimum one unsuccessful offeror. The objective of these personal interviews was to obtain a valid sampling of attitudes and to establish an avenue for expressing personal ideas. The Evaluation Group believed exceptionally valuable and meaningful data would be provided through these personal interviews with Government individuals who actually conducted the source selection. Equally important to assure an impartial

evaluation of the Four Step process was the consideration of Industry's comments and experiences. Subsequent to the Evaluation Group's visit to participating contractors, each was given the opportunity to submit written comments to the Evaluation Group. In the opinion of the Steering and Evaluation Groups, informal ideas of Government and Industry personnel relative to the overall effectiveness and efficiency of DoD source selection procedures, plus any suggested changes, would add support and perspective to the final Evaluation Group conclusions and resultant Steering Group recommendations.

FACILITIES VISITED

Figures 4 and 5 reflect the Government Agencies and participating contractors visited by the Evaluation Group during the test. Companies visited represent both large and small DoD contractors.

GOVERNMENT

AIR FORCE

AERONAUTICAL SYSTEMS DIVISION

ELECTRONIC SYSTEMS DIVISION

SPACE AND MISSILE SYSTEMS ORGANIZATION

ARMY

AVIATION RESEARCH AND DEVELOPMENT COMMAND

MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT COMMAND

MISSILE COMMAND

EDGEWOOD ARSENAL

NAVY

NAVAL AIR SYSTEMS COMMAND

NAVAL SEA SYSTEMS COMMAND

NAVAL ELECTRONIC SYSTEMS COMMAND

NAVAL TRAINING EQUIPMENT CENTER

Figure 4

INDUSTRY

AIRESEARCH MANUFACTURING COMPANY, PHOENIX, ARIZ

BOEING AEROSPACE COMPANY, WICHITA, KAN

BOEING AEROSPACE COMPANY, SEATTLE, WASH

CUBIC CORPORATION, SAN DIEGO, CA

DELTA ELECTRONICS CONTROL CORPORATION, IRVINE, CA

FORD AEROSPACE AND COMMUNICATIONS CORPORATION, NEWPORT BEACH, CA

GENERAL ELECTRIC COMPANY, LYNN, MASS

GENERAL DYNAMICS, POMONA, CA

GRUMAN AEROSPACE CORPORATION, BETHPAGE, NY

GTE SYLVANIA, MOUNTAIN VIEW, CA

GULF AND WESTERN INDUSTRIES, SWARTHMORE, PA

GULTON INDUSTRIES INCORPORATED, HAWTHORNE, CA

HONEYWELL INCORPORATED, LEXINGTON, MASS

HUGHES AIRCRAFT COMPANY, CANOGA PARK, CA

HUGHES AIRCRAFT COMPANY, FULLERTON, CA

INTERNATIONAL BUSINESS MACHINES, OWEGO, NY

INTERNATIONAL LASER SYSTEMS, INCORPORATED, ORLANDO, FL

ITT CORPORATION, VAN NUYS, CA

LITTON DATA SYSTEMS, VAN NUYS, CA

LOCKHEED AIRCRAFT SERVICES, ONTARIO, CA

LOCKHEED MISSILE AND SPACE COMPANY, SUNNYVALE, CA

MARTIN-MARIETTA AEROSPACE, DENVER, CO

Figure 5

INDUSTRY (cont)

SARGENT-FLETCHER COMPANY, EL MONTE, CA

SYSTEMS GROUP OF TRW INCORPORATED, REDONDO BEACH, CA

TELEDYNE SYSTEMS COMPANY, NORTHRIDGE, CA

UNITED TECHNOLOGIES CORPORATION, SIKORSKY DIVISION, STRATFORD, CT

UNITED TECHNOLOGIES CORPORATION, NORDEN DIVISION, NORWALK, CT

XEROX ELECTRO-OPTICAL SYSTEMS, PASADENA, CA

Figure 5 (cont.)

REPORT COORDINATION AND TRANSITION

The plan for testing the Four Step procedures included coordination of a draft final report with the Military Departments and Industry. Their comments and suggestions were to be reviewed by the Steering and Evaluation Groups with appropriate changes made to the final report. The coordinated final report with Steering Group recommendations was to be forwarded to the Deputy Under Secretary of Defense(Acquisition Policy) for his decision on adoption of new source selection procedures .

CHAPTER THREE

FINDINGS AND CONCLUSIONS

The findings discussed in this chapter are drawn from two principal sources: formal written reports which respond to the Service Test Plan data requirements, submitted by the procuring activity, and informal, candid, face-to-face interviews between the Evaluation Group and Procuring Contracting Officers, Program Managers, members of source selection organizations, successful, and unsuccessful offerors.

Factual data, such as source selection time, numbers and identification of offerors, program dollar amounts and the like, have been drawn from the written reports. These reports are on file in the Office of the Deputy Under Secretary of Defense (Acquisition Policy).

Subjective assessments by Government and Industry individuals and organizations participating in test programs have been drawn principally from the interviews and, in part, from the formal written reports by the Government agencies, contractors, and the CODSIA position paper. Records of the interviews and the other written submissions are also on file. Since many people were involved in this test and in the interviews, there were diverse assessments and opinions expressed on each point. This diversity was based, to some degree, upon the individual degree of experience in Defense source selections, approaches to source selection which vary from service to service and within each service, and in rare

cases, rigid preconceptions.

In recognition of the causes of these diversities, the Evaluation Group carefully avoided a completely numeric polling of individual assessments and instead sought to reveal the consensus. In part, this was achieved through giving the greatest emphasis to data obtained from knowledgeable participants who based their comments on their experiences with the test programs.

The conclusions are those of the Evaluation Group and are drawn directly from the findings.

The findings and conclusions which follow are organized to comment directly upon the evaluation criteria set forth in Chapter Two.

TIME

FINDINGS - Initially, the rationale for selecting time as an evaluation criterion was that any reduction in the total time to conduct source selection would be an improvement in the overall source selection process.

Operationally, time measurement commences with release of a solicitation and ends with the award of a definitive contract. Since the Four Step process does not directly influence the time allowed for the preparation of proposals and because this time is influenced by many

factors external to the process, the time measurement used in the test commences with receipt of the initial technical proposal in Step 1 and ends with the award of a contract in Step 4. This measurement for the test programs is shown in Figure 6.

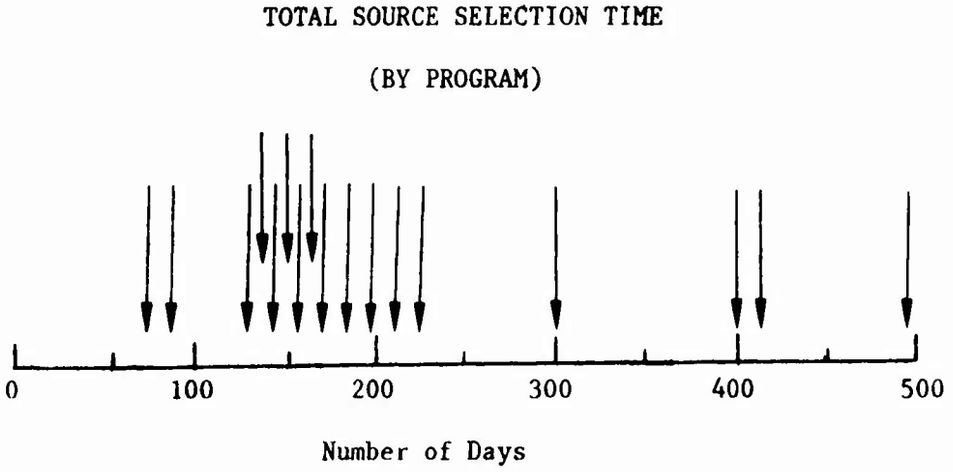

Figure 6

Figure 6 displays a wide range of time expended for the various test programs. This expenditure was not necessarily due to program type, magnitude, or complexity, but in many cases was significantly influenced by factors external to the selection process. Such factors include: non-availability of funding, disruptions in the integration of other acquisitions, and extended decision making processes on the program needs or requirements.

Examination of this empirical data does not indicate whether the Four Step process is either more or less time consuming. Specific

comparisons with acquisitions using the conventional method of source selection were unproductive since no sufficiently similar acquisitions could be identified. Attempts to remove extraneous factors from the experienced times would result in an artificial display of acquisition lead times seldom experienced in reality. Thus, findings with regard to whether the Four Step process is characterized by acceptable or protracted lead times or whether it is more or less timely than the conventional method must rely upon the subjective assessments of the participants.

In general, both Government and Industry participants thought the Four Step process took a longer time (14 to 30 days longer on the average) than the conventional method. Contributing factors cited were:

a. Separate and sequential submission of technical and cost proposals which extends time by denying the opportunity for near simultaneous evaluation of both technical and cost proposals.

b. Lack of familiarity and experience with the Four Step process.

The time between receipt of technical proposals and receipt of cost proposals ranged from 38 to 80 calendar days with the average being approximately 47.

The significant advantage provided by the present test requirement for sequential submission of technical and cost proposals was that it permitted the offeror additional time to assure that his cost proposal reflected his baseline technical proposal to the maximum practical

extent. While there was strong support for sequential submission of technical and cost proposals, it was recommended that a shorter time period be required.

The consensus of Government participants was that overall time savings could be realized by conducting detailed negotiations with only one selected offeror rather than with all those in the competitive range. There was also significant opinion among Government participants that the additional time experienced would be reduced with exposure to the Four Step process.

The great majority of Industry participants interviewed were of the opinion that, if there was any net increase in time, such an increase was productive in the sense that the Four Step process was more orderly and disciplined. A notable dissent to this view was expressed by those to whom any increase in time represented a further opportunity for technical transfusion, principally through an industry-wide intelligence exchange among prospective subcontractors.

Many of the Government participants in the service test set forth a schedule of source selection events in the solicitation. This approach was viewed very favorably by both Government and Industry representatives as a means of bringing discipline to the source selection process.

CONCLUSIONS

- The test data does not demonstrate that the Four Step process takes more or less time than the conventional process.

- Test participants were of the opinion that the Four Step process was more time consuming.

- Further experience with the Four Step process may reduce the overall time.

- The solicitation should include a schedule of source selection events.

SOLICITATION QUALITY

FINDINGS - The measurement of this criterion included examination of the number of amendments to the solicitation, the number of Industry inquiries and comments on the solicitation, and, most importantly, the assessment of the participants.

There were 111 amendments to the solicitations involved in the test program. The six major system acquisitions involved in the test accounted for 76 percent of these amendments.

There were 619 Industry inquiries on the test program solicitations. This number represents the total inquiries made by all interested firms and has not been adjusted for duplication. As with solicitation amendments, the six major system acquisitions accounted for 69 percent of these inquiries.

An excellent procedure was observed at the USAF Electronic Systems Division. A library, accessable to Industry, consisting of requirements documents in whatever state of development, was established at the inception of the program and kept current throughout the period of solicitation development. The dialogue resulting from this approach has been extremely productive.

Government participants assessment of their solicitation quality reflected a high degree of satisfaction.

Industry assessment of solicitation quality varied from average to high acceptability.

There was no consensus that solicitation quality was affected by use of the Four Step process. Both government and Industry participants expressed the belief that:

a. Further use of the Four Step process may motivate additional improvement in solicitations.

b. The quality of solicitations in the test programs may have been driven by their visibility as test programs and by the emphasis given large, important acquisitions.

c. Meaningful dialogue between the Government and Industry during the early stages of the acquisition cycle would improve solicitation quality.

CONCLUSIONS

- The test did not demonstrate that the Four Step process affected solicitation quality.

- The number of solicitation amendments and Industry inquiries was not indicative of solicitation quality.

PROPOSAL QUALITY

FINDINGS - The measurement of this criterion included the same points as in solicitation quality; number of proposal changes, number of Government clarification requests, and assessments by the participants.

The sixty-two proposals submitted in the seventeen test programs were amended 89 times. Each such amendment included many individual changes; the number and type of which are not known.

There were 3511 Government clarification requests made on all test programs. The six major system acquisitions involved in the test program accounted for 71 percent of these requests.

Most Government comments noted no difference in technical proposals submitted under the Four Step process. Industry commented that no different approach was taken to preparation of technical proposals because of the Four Step process. However, many firms employed a different proposal strategy by submitting their best proposals initially and not relying on a best and final offer. This was primarily due to the limitation on discussions, early elimination of offerors and negotiations with the selected offeror.

Both Government and Industry indicated substantial benefit in terms of cost proposal quality in large, complex acquisitions. This perceived benefit relates to the sequential submittal of the technical and cost proposals. While industry commenced preparation of the cost part of their proposals along with the technical part, they were able to complete the cost proposal on the known baseline of the submitted technical proposal and incorporate more realistic subcontractor quotations. This benefit is greatly diminished in smaller, less complex acquisitions and in all acquisitions where the time period between submissions is excessive.

CONCLUSIONS

- Industry comments revealed that the Four Step process encouraged a proposal strategy of "first and best."

- Cost proposals are made more realistic through sequential submissions.

- The number of proposal changes and Government clarification requests were not indicative of proposal quality.

PERSONNEL UTILIZATION

FINDINGS

This criterion was developed as two distinct factors.

First, the number of Government manhours involved in the source selection process was used to determine total resource expenditure. Direct comparison with other conventional acquisitions was again found impractical. Government participant's comments and assessments were relied upon to evaluate this factor.

The Government assessment is that the Four Step process uses more personnel resources than the conventional method primarily because of the need to retain technical evaluators until after the submission of the cost proposal and revisions to technical proposals.

An associated problem in the Four Step process concerns the timing and application of Field Pricing Support from Administrative Contracting Officers (ACO) and the Defense Contract Audit Agency (DCAA). Many Government personnel were unsure of the need to obtain reports on all offerors submitting cost proposals, all remaining in the competitive range, or only the selected offeror.

The second factor of this criterion was the use of industry personnel and the expenditure of Bid and Proposal costs. This factor is a function of time. The Four Step process, through the introduction of two defined sequential proposals and competitive discussions, retention of a "Best and Final Offer" or "common cut off date", and limitation of negotiations to only the selected offeror, affects the length of time that contractor resources are required and the times at which these resources are applied. Data received from Industry on resources expended could not be used because of desparity in records and differences in accounting systems. Reliance is therefore based on Industry opinion. The recurrent comment is that the Four Step process is more expensive if one is the winner but less expensive if one is a loser. This comment is based on the need to retain resources after the "Best and Final Offer" for the purpose of the ensuing negotiations if one is selected. If one is not selected, the effort of detailed negotiations is not required.

The separation in time of the technical and cost part of proposals was assessed as beneficial to the effective us of Industry resources.

However, the time period between the two, if allowed to become excessive, could cause unacceptable increases in resource costs. Offerors expressed the opinion that the Four Step process is more disciplined. This discipline, especially when expressed in the solicitation as a schedule of source selection events, is conducive to early planning and subsequent efficiencies.

As to whether notified unsuccessful offerors disbanded their proposal teams, responses were mixed. The principal factors in the decision appeared to be the offeror's perception of his standing in the competition, his ease of reassembling the team, and the degree of credibility placed in the Government's intent to follow the announced Four Step process. The general opinion was that more experience with the Four Step process would find more offerors disbanding their teams upon notification that they were unsuccessful.

As in the conventional method, the complaint was voiced that clearly unsuccessful offerors are not notified of their elimination from consideration early enough. A strong preferance was expressed by many (both Government and Industry) for elimination of clearly unacceptable offerors after technical evaluation and discussions and prior to submission of cost proposals.

CONCLUSIONS

- The Government expenditure of resources is increased by the Four Step process.

- Unsuccessful offerors' expenditure of resources remained unchanged or was reduced.

- Successful offerors' expenditure of resources is increased.

SINGLE SOURCE NEGOTIATIONS

FINDINGS

This criterion is closely associated with the other criteria of protest activity, discussion of deficiencies, and Head of the Procuring Activity (HPA) waivers. This criterion was assessed through the expressed opinion of Government and Industry participants.

The Government consensus was that negotiations with only the selected offeror is advantageous. No unusual resistance by selected offerors was encountered in the test programs. Much time and effort was thought to have been saved. If not saved, it was more beneficially applied to the best proposal. To the contrary, there was a strong minority view that negotiations with all offerors in the competitive range was necessary. The existence of open competitive pressure is thought to be essential

for obtaining the best deal for the Government. Also, it is strongly believed that the source selection authority cannot make a sound decision without the results of detailed negotiations. This latter point goes directly to the criterion of discussion of deficiencies. It was noted by most of the participants in smaller test programs that detailed negotiations with selected offerors were perfunctory. The earlier limited discussions in Steps 1 and 2 had satisfied all requirements.

ASPR 3-805 defines a deficiency as "... that part of an offeror's proposal which would not satisfy the Government's requirements." The Directive requires that "... the selected offeror's proposal (technical and cost) must satisfy the Government's minimum requirements." There is significant doubt as to the substance of negotiations with the selected offerors when viewed in the light of Directive's requirements

With few exceptions, Industry strongly supports negotiations with only the selected offeror. A significant number of Industry participants, without implying wrongdoing, admitted to injudicious acceptance of Government proposals in competitive negotiations. It is Industry's firm belief that competitive negotiations, as currently practiced, encourage "auctioning" and contribute significantly to buy-ins. Conversely, in the test programs, much of Industry felt a damaging absence of dialogue with the Government. This will be addressed more completely in the "Discussion of Deficiencies".

Generally, Industry participants said that they were not, and would not be recalcitrant or non-responsive in negotiations if they were the selected offeror. However, their responsiveness to Government raised issues would be accompanied by a stronger inclination to realism in changing their proposals.

In summary, Figure 7 depicts the opinion of participants with regard to negotiations with only the selected offeror.

NEGOTIATIONS

(With One Offeror)

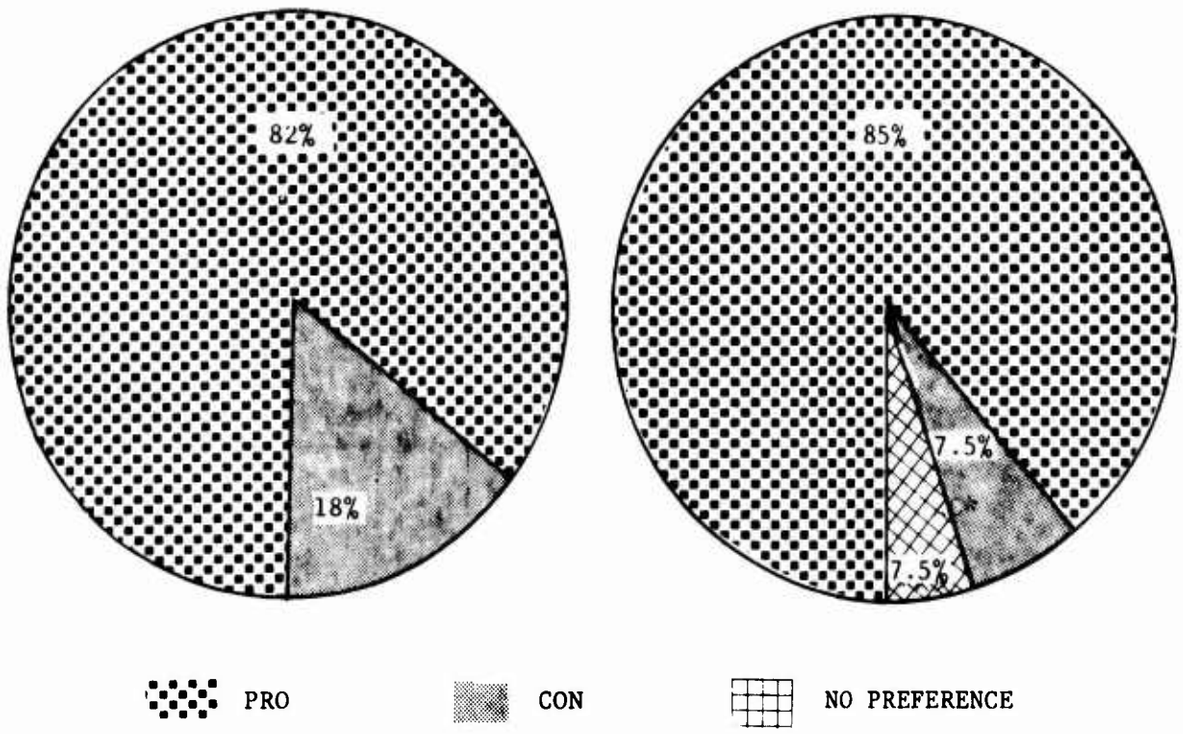

Figure 7

CONCLUSIONS

- Negotiations with only the selected offeror is a viable and in selected instances is the preferred approach.

- The lack of detailed negotiations with all offerors in the competition range may deny the source selection official useful information upon which to make a sound decision, and eliminate the advantages to be gained through continued competition.

- There is a need for clearer regulatory language regarding the substance of negotiations with the selected offeror.

PROTEST ACTIVITY

FINDINGS - This criterion addressed the concern that the Four Step Process increases the opportunity for protests prior to award and the resulting program disruption.

There were three protests on test programs; two prior to contract award and one after contract award. All protests were resolved in the Government's favor.

One protest, among other things, challenged the Government's implementation of the limitation on discussions. The second protest, among other things, alleged that negotiations with the selected offeror improperly made material changes in his proposal which affected the basis for selection. The third protest did not address the Four-Step procedures.

The consensus of both Government and Industry participants is that the Four Step Process increases the possibility of protests prior to award. This is due to unfamiliarity with the process on both sides and, more importantly, to the earlier notification to unsuccessful offerors.

This latter point makes a protest more meaningful and thus more attractive as a means of correcting perceived unfair treatment.

CONCLUSIONS

- The opportunity for protest prior to award is increased by the Four Step process.

DISCUSSION OF DEFICIENCIES

FINDINGS - This criterion and the single source negotiations are inseparable and at the heart of the Four Step Process.

For the purpose of the test and this report, the term "clarification" is used to describe those technical deficiencies which "lead to a conclusion ... that (a) the meaning of the proposal ... is not clear, (b) the offeror has failed to adequately substantiate a proposed technical approach or solution, or (c) further clarification of the solicitation is required for effective competition". The term "deficiency" is used to describe those technical issues "clearly relating to an offeror's judgment, or his lack of competence or inventiveness in preparing his proposal". In the Four Step Process, discussions with competing offerors are limited to addressing clarifications and may not involve the disclosure of deficiencies.

Government participants experienced varying amounts of difficulty in categorizing and stating technical issues as either a clarification or a deficiency. These reponses are portrayed in Figure 8.

DIFFICULTY
DEFICIENCY vs CLARIFICATION

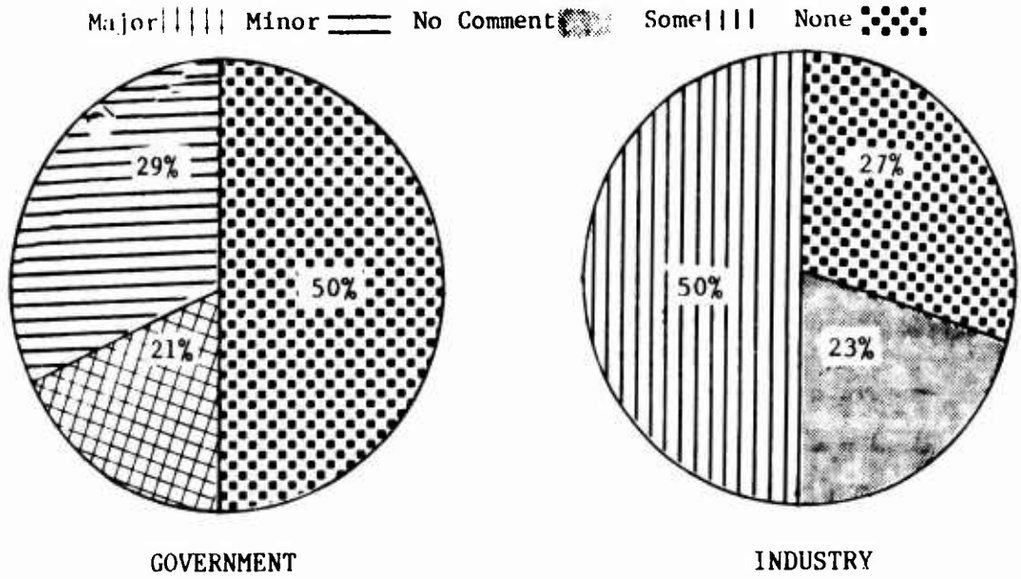

Figure 8

In most test programs, great care and deliberation was devoted to this distinction. In some large programs, special groups of source selection personnel reviewed each issue. Many personnel attributed apparent lengthened source selection time to this process.

The limitation on discussions and distinction between a clarification and a deficiency were viewed as having the following results:

a. Technical leveling during the source selection process was reduced or eliminated.

b. The selection was principally based on proposals as initially submitted, making the differences, as perceived among, them clearer.

c. Uncertainty in the source selection decision was increased since, in the absence of discussion of deficiencies, reliance was necessarily placed on the Government's estimate of the ability of an offeror to correct a deficiency and the impact of such correction on other areas of his proposal, most significantly cost.

d. Resolution of deficiencies was left to negotiations with the selected offeror (in some cases this resulted in a contract value higher than the best and final offer).

e. Communication between the Government and offerors was severely restricted. In many cases, limitations on discussions led to the exclusion of face-to-face communication.

The Directive's provisions concerning "meaningful discussions" in connection with cost proposals were interpreted by most Government participants as prohibiting identification and resolution of areas of cost considered by the Government to be too low or too high. In a few instances, however, this interpretation was not made because of the phrase "meaningful discussions", and cost areas were in fact negotiated with all offerors in the competitive range.

Industry comment on this matter consists of three major points.

First, with few exceptions, Industry perceived no disclosure of deficiencies by the Government in the test programs. Industry was quite aware of the care being exercised by the Government. It was acknowledged that an offeror's interpretation of a clarification inquiry might lead to belief that the issue was considered a deficiency and that the wording of the inquiry could, intentionally or not, solicit a proposal change.

Second, most industry participants were genuinely concerned about the reduction of communications between the Government and offerors caused by the limitation on discussions. This lack of communication is viewed as inimical to both parties' understanding of the requirement and proposed approaches. Further, some firms expressed the opinion that they were not given a reasonable opportunity to explain what was being offered or present alternative solutions which were developed at the time of proposal preparation but not included in the proposal submitted. Industry recognizes the dilemma with which they are faced between the absence of discussion of deficiencies (reducing technical leveling) and unlimited discussions (contributing to leveling and auctioning). Limitation on discussions is viewed as a powerful tool for enhancing the integrity of the acquisition process as a whole; it is viewed less favorably when utilized in a specific acquisition where success or failure may depend upon open dialogue on critical issues in a proposal.

Third, industry noted at least one case in which the discussions of the cost proposal took the form of the Government identifying those areas of cost which it considered too high or too low. Most of industry considers this practice to be a form of auctioning which should be eliminated by the Four Step process.

Both Government and Industry participants were of the opinion that further use of the Four Step process would ease the rigid lack of

communication experienced in the test programs. Both parties would learn to deal with limited discussion in a more positive manner.

An interesting opinion was voiced by some participants in the smaller test programs (both Government and Industry) to the effect that the Four Step process considerably enhanced communications by requiring two periods of discussion, however limited. It had been their experience that no contact was made after proposal submission until notification of award.

CONCLUSIONS

- The regulatory language concerning the distinction between the two types of technical deficiencies (clarifications and deficiencies) is unclear.

- The regulatory language concerning the discussion of cost proposals is unclear.

- Technical leveling was reduced or eliminated by not disclosing deficiencies.

- Communication between the Government and Industry was severely restricted.

- Visibility of discriminating features among proposals was maintained by the absence of disclosure and correction of deficiencies.

- Undisclosed and uncorrected deficiencies increased the uncertainty of the source selection decision.

- The Government's estimate of expected performance and cost and of an offeror's ability to correct deficiencies is of paramount importance to the source selection decision under the Four Step process.

MULTIPLE/REPETITIVE SCORING

FINDINGS - This criterion was included as an indicator that deficiencies may have been disclosed if, in repetitive scoring or ranking, an offeror's relative position changed.

In general, a scoring or ranking was accomplished after receipt of the cost proposal and again upon receipt of best and final offers. In only two programs were there more than two scorings or rankings. In all cases, the offeror ranked first in the initial scoring was selected for contract award.

CONCLUSION

- There was no disclosure of deficiencies which influenced the ultimate source selection decision.

SOLICITATION AMENDMENTS

FINDINGS - This criterion was included to assess whether technical leveling may have occurred through the issuance of amendments to the solicitation after proposals had been received.

There were 62 amendments issued to test program solicitations after receipt of proposals (approximately fifty percent were issued on one program). There was no indication that these amendments were intended to technical level proposals.

CONCLUSION

- Technical leveling did not occur through the issuance of solicitation amendments after receipt of proposals.

COST ESTIMATES AND COST PROPOSAL DECREASES

FINDINGS - Various cost/price data was assessed for indications that buy-ins may have occurred.

This assessment did not reveal evidence that a buy-in occurred on any of the test programs.

Industry and Government opinion was that through reduction in technical leveling and auctioning, the Four Step process would tend to reduce "buy-ins". Both parties strongly expressed belief that many factors outside of the source selection process more significantly motivated the circumstance of a "buy-in". Several firms candidly stated that they had "bought-in" on a test program, seeking to gain the larger business of production in the future.

CONCLUSIONS

- The Four Step process may have a moderate impact in reducing buy-ins.

- Buy-ins are precipitated by factors external to the source selection process which must be addressed by other means.

BEST AND FINAL OFFERS

FINDINGS - This criterion sought to examine multiple calls for "Best and Final Offers" as the most visible method of auctioning.

There was only one test program in which there was more than one "Best and Final Offer". In that program, a second "Best and Final Offer" was dictated by a need to accommodate an extended requirements deliberation. There was no evidence of auctioning in any of the test programs.

CONCLUSIONS

- The Four Step process appears to have eliminated repetitive calls for "Best and Final Offers" in the absence of compelling reasons.

- The opportunity for Auctioning through multiple "Best and Final Offers" is substantially reduced or eliminated.

HEAD OF PROCURING ACTIVITY WAIVER

FINDINGS - This criterion addressed the provision of the directive that the Head of the Procuring Activity (HPA) could permit multiple negotiations.

The HPA authorized multiple negotiations on only one test program. This determination was made to retain for the Government the negotiation advantage of a competitive environment.

CONCLUSION

- There is a need for the regulatory language to include criteria for use by the HPA in making a determination as to when multiple negotiations are warranted.

GENERAL

The Four Step process is directed toward solicitation, negotiation, and selection methods which appear to have created environments in which technical leveling, auctioning and buy-ins can occur. It cannot and does not affect such factors as:

- ⊖ Overly optimistic technical goals/requests and injudicious industry response to them.
- ⊖ Unrealistic Government program cost and schedule estimates and industry acquiescence.
- ⊖ Economic conditions in industry such as idle capacity.
- ⊖ Industry motives of technical pride, survival and retention of trained workforces.

To the extent that such factors contribute to, or drive, undesirable selections, Four Step will not achieve a total solution of the problem.

In those programs where requirements are well defined and the acquisition seeks the best approach/solution to their satisfaction, Four Step appears to be most effective. In those programs where there is a need to seek definition or resolution of requirements during the selection process, the limitation on discussions of the Four Step process is counter productive.

Acquisitions which seek satisfaction of known requirements with established approaches or solutions would be expected to base the source selection decision on other than technical excellence or innovation. In such instances, there should be little or no concern with technical leveling and the limitation on the discussion of deficiencies is neither necessary or desirable.

Both Government and industry participants were asked to express their preference in source selection processes in one of the following categories:

FOUR STEP: The Four Step process essentially as now set forth in DoD Directive 4105.62 would be made the standard source selection process for all acquisitions in the Department of Defense.

CONVENTIONAL: There would be no change in current practices. Four Step would be abandoned.

HYBRID: Certain features of the two processes would be used in a single new process. It is noted that there were as many different hybrid processes as there were participants who put themselves in this category.

DUAL: Both Four Step and conventional processes would be available. The determination of which to use would be made by some highly placed authority using established criteria.

Figure 9 portrays the results of this inquiry.

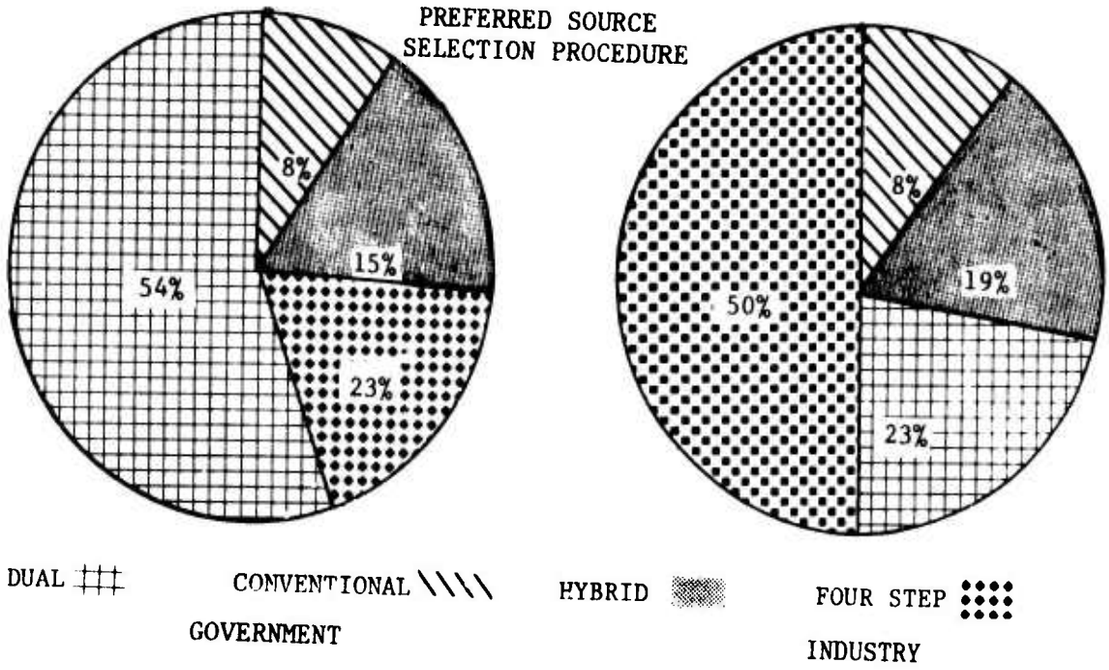

Figure 9

The percentages reflected in Figure 9 are based upon interviews and discussions with 80 Government and 98 Contractor personnel who were involved in the test programs.

CHAPTER FOUR

RECOMMENDATIONS

The following recommendations for the adoption of the Four Step Source Selection Procedures are based on the test findings and conclusions presented in Chapter III of this report. Upon approval, these recommendations will be implemented through the issuance of Appropriate Defense Acquisition Regulations.

- It is recommended that the Four Step Source Selection Procedures be adopted for all competitively negotiated acquisitions involving research and/or development which have progressed beyond the formulation of concepts except those which:

  - involve the selection of a contractor from among competing demonstration and validation contractors
  - have an estimated value of less than $2 million*
  - are negotiated pursuant to 10 USC 2304(a)(2)
  - are solely for personal or non-personal services
  - are for Architect-Engineer efforts

    * Dollar threshold will be reviewed at a later date to determine if a change is required

- Waiver of the requirement to use Four Step Procedures in the competitive acquisition of major Defense systems, as designated pursuant to DoDD 5000.1, shall be granted only by the Acquisition

Executive of the Military Departments. For all other acquisitions, waivers shall be granted in accordance with Military Department regulations.

- It is recommended that provisions be developed to authorize use of the Four Step Procedures on any acquisition where deemed appropriate.

- The following recommendations are made for improvement of the Four Step Procedures.

  - The solicitation should include a schedule of source selection events.

  - Technical libraries, draft solicitations and/or specifications, pre-solicitation and pre-proposal conferences should be used as a means of providing early and open dialogue leading to a better understanding between Government and Industry.

  - The provisions relating to negotiations with the selected offeror should be changed to (1) eliminate the requirement that the selected offeror's proposal (technical and cost) must satisfy the Government's minimum requirements; and (2) more clearly specify that technical deficiencies must be disclosed

and resolved, and detailed negotiations conducted in order to assure that the Government's minimum requirements are satisfied.

- The provision relating to the discussion of technical proposals be changed to specify that offerors shall not be advised of deficiencies in their proposals. A deficiency is defined as that part of an offeror's proposal which would not satisfy the Government's requirements. Offerors shall be advised of areas of their proposal in which the intent or meaning is unclear or for which additional substantiating data is required for evaluation. Where necessary for complete understanding of proposals, clarifications and/or additional substantiating data may be requested concerning those areas of an offeror's proposal where there is doubt that a deficiency exists. Where it is apparent that all offerors or a majority of offerors have misinterpreted a requirement in the solicitation, clarifications shall be provided to all offerors to assure complete understanding. Oral discussions are encouraged where necessary for effective communication.

- Provisions for discussion of cost/price proposals should be changed to explicitly state that cost discussions shall not disclose to offerors those areas of their cost proposal which the Government believes are too high or too low.

- The provision for the HPA to authorize negotiations with more than one offeror should be changed to specify that such authorization shall not be used solely for the purpose of maintaining technical and/or price competition. However, such authority may be granted, as an example, in unique situations where there are no significant discriminating technical or cost features between two or more offerors.

- Existing Government curricula in acquisition should be expanded to include training in the Four-Step procedures.

CHAPTER FIVE

IMPLEMENTATION

The new policy on source selection resulting from the test of the Four Step Procedures will be set forth in the Defense Acquisition Regulations. Effective date for implementation of the new procedures is scheduled for 1 October 1978.

SOFT RING AIRFOIL GRENADE PROJECTILE

(US Army Edgewood Arsenal)

The XM742 Soft Ring Airfoil Grenade (Soft Rag) Projectile program is to develop a ring-shaped airfoil cross section which causes the projectile to fly with a relatively flat rather than a ballistic trajectory. The projectile is a non-hazardous item made of a soft, resilient rubber-like material housing a riot control agent. This non-injurious projectile requires no fusing; it utilizes the forces produced by spin to preload the outer structure to an appreciable portion of its failure strength, augmented by impact forces to rupture a peripheral band, allowing the payload to disseminate without injury to targets.

A Cost Plus Fixed Fee contract for engineering development, valued at $349 thousand, was awarded to Gulf and Western. The instant contract is for engineering development of the XM742 Soft Ring Airfoil Grenade Projectile.

The Government solicitation resulted in proposals from the following companies.

Gulf and Western Industries, Advanced Development and Engineering Center

MBAssociates, Applied Technology Division

ENGINE, 800 HORSEPOWER (ATDE)

(US Army Aviation Research and Development Command)

The 800 Shaft Horsepower Advanced Technology Demonstrator Engine (ATDE) program was formulated to provide a technology base for future gas turbines that may be used for Army aircraft and other Department of Defense applications. There are advantages to be accrued from engines having low weight, low specific fuel consumption, reduced cost, improved survivability, increased reliability, and reduced maintenance. This program is intended to develop a nonregenerative front drive, free shaft, 800 shaft horsepower class advanced gas turbine demonstrator engine utilizing proven advanced technology that has been demonstrated by component and/or gas generator testing.

Two Firm Fixed Price contracts for experimental, development or research effort, valued at $11.0 million and $11.3 million, were awarded to AVCO Lycoming and Detroit Diesel Allison. The instant procurement was for the design, fabrication and test of a complete 800-Shaft Horsepower Advanced Technology Demonstration Engine (ATDE) including major components, the subsystems and gas generator.

The Government solicitation resulted in proposals from the following companies.

Detroit Diesel Allison of General Motors

AVCO Lycoming

General Electric Company

AiResearch Manufacturing Company

Pratt-Whitney Incorporated

LIGHTWEIGHT ROCKET LAUNCHER

(U.S. Army Missile Command)

The Lightweight Rocket Launcher program consists of development and production of seven tube and nineteen tube Lightweight Launchers (LWL) for the 2.75 inch Rocket System. The new launcher will be capable of firing all configurations of current and planned 2.75 inch rockets, will also function as the modular package/shipping container, will be compatible with remote set fuses, automatic boresighting and self-loading bomb racks, and operate under moderate icing conditions. The Lightweight launcher will be fifty and eight pounds, respectively, lighter than their current counterparts, the M200A1 and M158A1. The LWLs are intended for use on the AAH, AH-1S and AH-1R helicopters.

A Cost Plus Incentive contract for engineering development valued at $1.2 million, was awarded to Hughes Aircraft Company. The instant procurement is for engineering development of the Lightweight Launcher. It will result in a technical data package suitable for competitive procurement.

The Government solicitation resulted in proposals from the following companies.

BEI Electronics Incorporated

Boeing Aerospace Company

Harvard Interiors Manufacturing Company

Hughes Aircraft Company

Talley Industries of Arizona Incorporated

SQUAD AUTOMATIC WEAPON SYSTEM (SAWS)

(US Army Armament Material Readiness Command)

The Squad Automatic Weapon (SAW) is to supplement and reinforce the fire power of other weapons in the Rifle Squad Fire Team. It is to be a lightweight, one-man, self powered machine gun which is capable of delivering a large volume of automatic, lethal, accurate, sustained fire to an effective pre-arranged range. The SAW System is being developed to meet a Material Need (MN) approved by the Department of the Army. The SAW System is composed of the XM235 weapon and an improved 5.56mm ball and tracer ammunition.

A Cost Plus Fixed Fee contract for Advanced Development, at a value of $2 million, was awarded to Ford Aerospace and Communications Corporation. The instant procurement is for caliber conversion redesign, testing, fabrication, and delivery of weapons, repair parts to support tests, evaluation test, support services and documentation.

The Government solicitation resulted in proposals from the following companies:

Ford Aerospace and Communications Corporation

Maremont Corporation

INVERTER, 3KW FUEL CELL

(US Army Mobility Equipment Research and Development Command)

This program is to develop a silent, light weight, dc-ac Inverter. The 3KW Inverter is designed to be a militarized Inverter prototype for use with fuel cells in battery powered plants.

Two Cost Plus Fixed Fee contracts for preliminary design and prototypes, valued at $73.5 thousand and $170 thousand, were awarded to Gulton Industries and Martin Marietta. The instant procurements were for the preliminary design, pre-prototype (breadboard) and prototype of a 3KW Inverter (Power Conditioner).

The Government solicitation resulted in proposals from the following companies:

Chrysler Corporation

Delco Electronic Division of GMC

Delta Electronics Control Corporation

Gulton Industries, Engineered Magnetics Division

Jet Electronics and Technology Incorporated

Martin Marietta Aerospace

LIGHTWEIGHT FLIR SENSOR

(U.S. Army Mobility Equipment Research and Development Command)

The Lightweight Remotely Piloted Vehicle (RPV) Forward Looking Infrared (FLIR) Sensor program is to develop electro-optical imagery sensors for RPVs. The image device is required for RPVs to provide a day/night and limited visibility surveillance target acquisition capability. The sensor is a passive thermal imaging system capable of being mounted in a gimbal used in the U.S. Army's Aquila program. The system will incorporate a 505 line TV display format, be centroid auto-tracker compatible, be laser compatible, have two fields of view and have a cooler.

A Cost Plus Fixed Fee Contract for engineering development, at a value of $151 thousand, was awarded to Honeywell Incorporated. The instant procurement was for a Remotely Piloted Vehicle (RPV) Forward Looking Infrared (FLIR) Sensor.

The Government solicitation resulted in proposals from the following companies:

Ford Aerospace and Communication Corporation

Honeywell Incorporated, Radiation Center

DIVISION AIR DEFENSE SYSTEM (DIVADS)

(US Army Armament Research and Development Command)

The Division Air Defense System (DIVADS) is a mobile, forward-area air defense gun/radar mounted on an M48A5 tank chassis. It will be employed to protect forward maneuver elements against hostile fixed and rotary wing aircarft in conjunction with HAWK, PATRIOT, and STINGER systems.

Two Firm Fixed Price contracts, each of which provide for design, fabrication and test of two prototype gun systems, were awarded to Ford Aerospace and Communications Corporation, Aeronutronics Division, and General Dynamics Corporation, Pomona Division for a total of $78,735,000.

The Government solicitation resulted in proposals from the following companies:

Ford Aerospace and Communications Corporation

General Dynamics Corporation

General Electric Company

Raytheon Company

Sperry Gyroscope Incorporated

LIGHT AIRBORNE MULTI-PURPOSE SYSTEM (LAMPS MK-III)

(Naval Air Systems Command)

The Light Airborne Multi-Purpose System (LAMPS MKIII) program is a destroyer-helicopter system that consists of the helicopter as an extension of the shipboard surveillance and attack system. The LAMPS air vehicle is planned to be a twin-engined, extended mission helicopter.

A Cost Plus Fixed Fee contract for sustaining engineering (3 months), valued at $2.7 million, was awarded to Sikorsky Division, UTC. A Cost Plus Award Fee contract for Full Scale Development, valued at $106.6 million, will be also awarded to Sikorsky. The instant procurement was for the LAMPS MK III air vehicle. It includes the fabrication and furnishing of five (5) prototype (or pilot production) air vehicles with related and associated items. The contract encompasses such efforts as design/design modification, analyses, studies, reports, reliability, maintainability, quality assurance, integrated logistics support, safety, and other similar programs.

The Government solicitation resulted in proposals from the following companies:

The Boeing Company, Vertol Division
United Technologies Corporation, Sikorsky Division
Westlake Helicopter, LTD.

AN/SPS-YX SOLID STATE RADAR SET

(Naval Sea Systems Command)

The AN/SPS-XX Solid State Radar Set is being developed as a replacement for the aging SPS-10 surface ship radar. The AN/SPS-XX will be a modernized below-deck radar set using solid state technology and the Standard Electronic Module (SEM) packaging concept. The AN/SPS-XX will provide an improved navigational surface ship capability.

A Cost Plus Award Fee contract valued at $2,260,000 was awarded to the Norden Division of United Technologies, Incorporated. This contract called for the development and fabrication of two pre-production AN/SPS-XX systems with associated supplies and services.

The Government solicitation resulted in proposals from the following companies:

Cardion Electronic, Division of General Signal Corporation

Cubic Corporation

Dynell Electronics Corporation

Kuras-Alterman Corporation

Lockheed Electronics Company

Norden Division of United Technologies Incorporated

Sperry Gyroscope, Division of Sperry Rand Corporation

Westinghouse Defense and Electronics Systems Center

SUBMARINE/AIR OPTICAL COMMUNICATION SYSTEM

(Naval Electronic System Command)

The Submarine/Air Optical Communication System (SAOCS) will provide a tactical communications system based on an optical link between a submerged submarine and an airborne platform. The SAOCS will consist of a substantially new and different technical approach to Navy tactical communications.

A Cost Plus Fixed Fee contract valued at $310,577 was awarded to GTE Sylvania for an engineering study of a SAOCS Advanced Development Model (ADM).

The Government solicitation resulted in proposals from the following companies:

ITT Gilfillan

General Electric Company

GTE Sylvania

McDonnell Douglas Corporation

MARKSMANSHIP AND GUNNERY LASER DEVICES (MAGLAD)

(Naval Training Equipment Center)

The objective of the Marksmanship and Gunnery Laser Devices (MAGLAD) project is to develop, fabricate, and test a family of eye-safe lasers to mount on small arms and main tank guns for engaging laser sensitive targets to simulate firing service ammunition. Gallium Arsenide diodes and photoelectric detectors are utilized. A portion of the MAGLAD project is the development, fabrication and test of laser direct fire marksmanship and gunnery trainers using weapon mounted laser transmitters and target detectors to effectively simulate firing of service ammunition on field target ranges.

A Fixed Price Incentive contract for advanced development, valued at $846 thousand, was awarded to International Laser Systems Incorporated. The instant procurement was for ten advanced development models of the Laser Rifle Marksmanship Trainers, together with associated kits, Technical Data, Conferences, Reliability and Maintainability Program and Demonstrations, Interim Support Small Arms Blank Firing Shock and Temperature Measurement, Producibility Engineering and Planning Program, and Logistic Support Analysis.

The Government solicitation resulted in proposals from the following companies:

Bell and Howell, Optical Division

International Laser Systems Incorporated

XEROX Electro-Optical Systems

TACTICAL AIR ANTI-SUBMARINE WARFARE PODS

(Naval Air Development Center)

The Tactical Air (TACAIR) Anti-Submarine Warfare (ASW) Pod program was initiated to provide tactical aircraft with an ASW capability when the carrier is in a high threat area. The pods will contain sonobuoys, receivers, transmitter equipments, antenna and a multiplex control system. The data obtained from the sonobuoys will be relayed by the pod and received, processed and displayed for analysis in the carrier Anti-Submarine Classification and Analysis Center (ASCAC) or Tactical Support Center (TSC). This capability aboard a carrier will provide the task force commander with ASW information so that correct tactical decisions can be made.

A Cost Plus Fixed Fee contract valued at $830,051 was awarded to Lockheed Aircraft Service Company. This contract called for the design, development, fabrication and test of five Engineering Development Models (EDMs) and nine dummy TACAIR ASW Pods.

The Government solicitation resulted in proposals from the following companies:

American Scientific Corporation

Lockheed Aircraft Service Company

Sargent - Fletcher Company

Vought Corporation

SPACE SHUTTLE INTERIM UPPER STAGE (IUS)

(Air Force Systems Command Space and Missile Systems Organization)

The Interim Upper Stage (IUS) is an integral segment of the Government Space Transportation System (STS). The IUS development program is to acquire an inherently safe, highly reliable, low life cycle cost system with simple interfaces to the STS. The IUS vehicle is to consist of expendable solid propellant stages and is to be capable of delivering DoD, NASA, and Non-NASA spacecraft from the Space Shuttle. The IUS segment (Validation Phase) efforts are directed toward creating a preliminary design of an expendable solid propellant IUS to include airborne and ground support elements and interfaces.

A Cost Plus Award Fee contract for the Validation Phase (Engineering Development), valued at $22.5 million, was awarded to the Boeing Aerospace Company. The instant procurement included (1) preliminary design studies leading to selection of an optimum configuration (2) interface definition studies to define IUS to the Shuttle, and IUS to payload interface (3) preliminary design and analyses of IUS Airborne and ground support equipment, (4) refinement of program costs and schedules (5) establishment of the IUS system, allocated baseline and hardware demonstrations of critical components.

The Government solicitation resulted in proposals from the following companies:

Lockheed Space and Missiles Systems Company

Martin Marietta Aerospace

Boeing Aerospace Company

General Dynamics/Convair Division

SAC AUTOMATED TOTAL INFORMATION NETWORK (SATIN IV)

(Air Force Systems Command Electronic Systems Division)

The SATIN IV (SAC Automated Total Information Network) is a record data communication system for the Air Force Strategic Air Command (SAC). It will be a SAC subsystem of the World Wide Command and Control System and will provide secure two-way channels of communication between the National Military Command System, Commander Strategic Air Command, and the SAC Missile and Aircraft Combat Crew Commanders. It will replace the data transmission subsystem at the SAC Automated Command and Control System.

A Cost Plus Incentive Fee contract for system engineering development, at a value of $141 million, was awarded to ITT Corporation. The instant contract (PHASE I) consisted of the design, development, integration, and test of a functional system prototype of the SATIN IV System. Additionally, 130 SACCS Replacement Keyboards (SRK) as well as associated Peculiar Support Equipment and Spares are being acquired under the contract.

The Government solicitation resulted in proposals from the following companies:

Boeing Aerospace Company

GTE Sylvania

Computer Sciences Corporation

ITT Corporation

JOINT SURVEILLANCE SYSTEM

(Air Force Systems Command Electronic Systems Division)

The Joint Surveillance System (JSS) program is to acquire and deploy a peacetime air surveillance and control system to replace the Semi-Automatic Ground Environment (SAGE) system for the CONUS and Canada, and the manual ground environment system in Alaska. For Canada, the mission is expanded to include support of wartime air defense functions. In Alaska, the mission includes the performance of tactical air control functions.

A Firm Fixed Price contract for design verification, valued at $9.9 million, was awarded to Hughes Aircraft Company. The instant contract was for detailed design engineering to establish selected development and product specifications, develop and verify selected computer programs, provide/fabricate display and communications equipment, provide demonstration documentation, and perform and document a series of demonstrations.

The Government solicitation resulted in proposals from the following companies:

Hughes Aircraft Company

JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM

(Air Force Systems Command Electronics Systems Division)

The Joint Tactical Information Distribtuion System (JTIDS) is a time ordered, high data rate, secure, jam resistant, low intercept potential, digital information system with a relative navigation capability suitable for use by all services. JTIDS will interconnect tactical and air defense elements for distribution of critical information in real time for maximum combat effectiveness. The Adaptable Surface Interface Terminals (ASIT), a portion of the JTIDS, will permit existing tactical surveillance or command and control centers of the Military Services to operate through the JTIDS network. The principal objective of the ASIT is to operate with each surface subscriber in such a manner that no modification to the subscriber's hardware, software, and operating procedures are required.

A Cost Plus Incentive Fee contract for development and fabrication, valued at $10.6 million, was awarded to IBM. The instant procurement is for development and fabrication of 13 ASITs.

The Government solicitation resulted in proposals from the following companies:

Collins Radio Division of North American Rockwell

Computer Sciences Corporation

Hughes Aircraft Company

Harris Incorporated

IBM Corporation

Litton Data Systems Incorporated

B-52/KC-135 SIMULATOR

(Air Force Systems Command Aeronautical Systems Division)

The new B-52/KC-135 Simulator will incorporate the latest in digital technologies to provide realistic aerodynamics, visual, radar, electro-optical and motion cueing. Anticipated improvements are in force effectiveness through more realistic wartime training and significant reductions in aircrew operating costs. Each B-52 Weapon System Trainer (WST) consists of a flight station, offensive station, defensive station, instructor station, and means for interfacing these components. In addition to the above items, the KC-135 Weapon System Trainer (WST) will have communications interface with a boom operator station procured separately. The B-52 WST has a computer generated image visual system to provide visual cues for day/night takeoff, landing, and aerial refueling training. The KC-135 WST has a visual system to provide cues for night takeoff and landing training.

Two Fixed Price Incentive Firm contracts for two pilot production WST complexes, valued at $93 million total, were awarded to the Boeing Aerospace Company and the Singer Company, Link Division. The instant procurements were for two pilot production B-526/KC-135A WST complexes to develop and optimize the WST design in terms of commonality, producibility, supportability, etc., to minimize life cycle cost while meeting specified performance and availability. Twenty-eight months after contract award, each contractor's WST complex will be Air Force

tested for a period of approximately three months. The results of this testing will be used to augment proposals to be submitted by each contractor at the twenty-fifth month in order to make the selection for a follow-on production contract award.

The Government solicitation resulted in proposals from the following companies:

The Singer Company, Link Division

Boeing Aerospace Company

Gruman Aerospace Company